

## FOLDABLE SERVING TRAY STAND

### FIELD OF THE INVENTION

**[0001]** The present invention generally relates to folding serving tray stands, and more particularly to a serving tray stand that includes an open upper portion free of support straps, and lower cross bars connected by at least one support strap or restraining member.

### BACKGROUND OF THE INVENTION

**[0002]** Lightweight serving tray stands are widely used in the food service industry because they are easy to use, convenient, and greatly increase server efficiency. Tray stands reduce the spillage dangers inherent in serving with one hand while balancing a tray with the other, allowing servers to transport several dishes to or from a table in a single outing. Making a serving tray stand foldable adds the advantages of space efficiency and ease of storage and transport.

**[0003]** Serving tray stands constructed of a pair of pivoting frames with support straps located above the frames' pivot points are well known in the prior art. Examples include Wilson, U.S. Patent No. 1,488,425, which provides a folding serving stand with flexible bands connecting the upper portions of the stand; Spellman, U.S. Patent No. 4,580,750, which provides a restaurant tray support stand with fabric bands connecting the upper portions of the stand; and Sheffield, U.S. Patent No. 4,974,525 which provides a folding table apparatus with anchor loops connecting the frames of the apparatus above their pivot point.

**[0004]** Support straps mounted to upper portion of the tray stand frames above the pivot points may catch on the servers' arms, and may also interfere with placement and removal of the serving tray from the tray stand. This is particularly problematic when wait-staff are required to deal with heavy serving trays. Instead of freely and quickly removing the serving trays, servers must carefully reach between the bottom of the tray and the top of the straps to lift the trays without accidentally lifting or overturning the tray stand. Serving speed and efficiency suffer because servers are forced to maneuver between a solid tray bottom and support straps, which may entangle an arm.

**[0005]** Additionally, many available serving tray stands lack any protective means to prevent serving trays from sliding off of a stand that is inadvertently jostled or tilted. It would be

desirable to include a provision so that a serving tray would rest steadily on the stand, even if the stand were brushed against by accident or in the course of service.

[0006] Further, many commercially available serving tray stands merely provide an upper surface upon which to place a tray, without providing any additional storage capabilities. It would be desirable to include provisions that permit temporary storage of another service tray, or of a bus tub for carrying soiled dishes.

[0007] Barile, U.S. Patent No. 2,802,578, discloses a collapsible serving stand which provides a single, unitary shelf positioned below the pivot point of a pair of pivoting frames. A shelf is attached on one side to a transverse rod and on the other side to a transverse roller rod. The transverse rod is attached to one frame member, and the roller rod is attached to the other frame member. When the stand is collapsed, the roller rod slides along a slot formed within two sides of the shelf, thus allowing the shelf to pivot about the transverse rod. Though the shelf in Barile provides additional storage, its permanent sliding and solid parts render it vulnerable to breaking or catching. It is also necessarily heavier, bulkier, and more difficult to transport than conventional serving tray stands.

[0008] Accordingly, a need exists for a foldable serving tray stand with an open upper portion free of support straps. Desirably, such a tray stand includes protective bumpers or rings to prevent serving trays from sliding.

#### SUMMARY OF THE INVENTION

[0009] A foldable serving tray stand includes first and second frames, each having spaced parallel legs connected by a transverse portion. The frames are pivotably coupled at a pivot point located on a common axis. Also included are first and second cross bars attached to each frame below the pivot point. The cross bars are connected to each other by at least one restraining member configured to prevent pivoting movement of the frames away from each other by greater than a predetermined amount.

[00010] In a preferred embodiment, the frames are U-shaped, with an integrally formed transverse portion. The frames may be substantially the same size and pivotally coupled in an offset manner from each other. Alternatively, the frames may be differently sized and coupled one inside the other. Preferably, the U-shaped frames are made of metal, such as heavy gauge tubular steel. Each of the legs of the U-shaped frames may be capped with a plastic foot to provide secure contact with the floor upon which the tray stand rests. Each of the integral upper

transverse portions of the U-shaped frames may include at least one bumper or ring, preferably made of a non-slip material, such as rubber.

**[00011]** The cross bars may be connected to each other by at least one restraining member or strap. Preferably, two space apart restraining members are included. The straps may be made of a webbed material or fabric, such as nylon strap or other synthetic fabric. Most preferably, the crossbars and the strap(s) may be configured to hold service items, such as bus tubs and additional serving trays.

**[00012]** In an alternate embodiment, the first and second frames each have transverse beams connecting each leg. The frames may be substantially the same size and coupled in an offset manner from each other, or may be differently sized and coupled one inside the other. Preferably, the frames are made of wood, such as finished hardwood. Each of the transverse beams may include at least one non-slip ring or bumper. Most preferably, each transverse beam includes two non-slip rings spaced from one another.

**[00013]** With respect to the bumpers or rings attached to the transverse portions or beams 20, 22, 120, 122, either embodiment shown in FIGS. 1 or 2 may utilize the rubber rings or the raised bumpers. Such bumpers may be fastened by any suitable method as described herein, including screws, bolts, rivets, adhesive, and the like. It is not material whether a construction made of wood, plastic or metal utilizes the rings or the bumpers.

**[00014]** Further objects, features, and advantages of the present invention, together with the organization and manner of use thereof, will become apparent from the following description of the invention when taken in conjunction with the accompanying drawings, wherein like reference numerals designate like elements throughout the several views.

**[00015]** While the present invention is susceptible to various modifications and alternative forms, specific embodiments thereof are shown by way of example in the accompanying drawings and will be described in detail. It should be understood that the drawings and detailed descriptions thereof are not intended to limit the invention to the particular form disclosed, but rather, the invention is intended to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the present invention.

## BRIEF DESCRIPTION OF THE DRAWINGS

[00016] FIG. 1 is a perspective view of a foldable serving tray stand in accordance with a specific embodiment of the present invention, depicting the tray stand in an open state; and

[00017] FIG. 2 is a perspective view of an alternate embodiment of the foldable serving tray stand of the present invention, depicting the tray stand in an open state.

## DETAILED DESCRIPTION OF THE INVENTION

[00018] The present invention is directed to a foldable serving tray stand 10 as depicted in FIG. 1. The tray stand 10 generally comprises a first U-shaped frame 12, pivotably coupled to a second U-shaped frame 14. Both frames 12, 14 include spaced pairs of parallel legs 16, 18 and transverse portions 20, 22. The transverse portions 20, 22 may be integrally formed with the legs or may be separate therefrom. The frames 12, 14 may be generally tubular in shape, and made of metal or plastic. Preferably, the frames 12, 14 are made of heavy gauge tubular steel. Each of the legs 16, 18 may be capped with a foot 24. Preferably, the foot 24 is a rounded, ball or disk-type plastic foot, which may be inserted securely into the legs 16, 18. Such a foot 24 is advantageous because it prevents objects from catching on an exposed foot edge, as may happen with other, outside-fitting feet. Rounded feet 24 also are more wear-resistant, provide exceptional stability, and protect floors better than other types of feet.

[00019] The first and second frames 12, 14 are pivotably coupled to each other at first and second pivot points 26, 28 located on a common axis, labeled as "X." At the pivot points 26, 28, the tubular material of the legs 16, 18 of the first and second frames 12, 14 may be indented, to better keep the legs in alignment with respect to each other and prevent lateral movement. The frames 12, 14 are coupled at the pivot points 26, 28 with connectors, such as screws, bolts, rivets, pins 30, and the like. The tray stand 10 depicted in FIG. 1 is shown in its open state. The frames 12, 14 may be folded together about their pivot points 26, 28 to close the tray stand 10 to allow for easier transport or storage.

[00020] The frames 12, 14 may be substantially the same size and coupled to each other in an offset manner, as seen in FIG. 1. Alternately, they may be differently sized and coupled one inside the other such that one frame "straddles" the other frame. In such an alternate embodiment, the outside edges of the legs of one frame contact the inside edges of the legs of the other frame at the pivot point. However, tray stands composed of differently-sized frames are necessarily more technically demanding and expensive to manufacture, requiring production and

stocking of two separate frames. In contrast, tray stands constructed with a pair of same-sized frames are simpler and less expensive to manufacture, requiring production and stocking of only one frame type and size.

**[00021]** First and second tubular cross bars 32, 34 are attached to the legs 16, 18 of the first and second frames 12, 14 respectively, below the pivot points 26, 28. The cross bars 32, 34 are attached to the legs 16, 18 with connectors such as screws, bolts, rivets, pins 36, or any suitable connector. In the specific embodiment of FIG. 1, the cross bars 32, 34 are coupled to each other by two support straps 38, 40. At their ends, the support straps 38, 40 are partially wrapped around the cross bars 32, 34 and fastened with adhesives or connectors, such as screws, bolts, pins, or staples. Further, any suitable connection method may be used, such as welding in place, and the like. Although the embodiment illustrated in FIG. 1 discloses two support straps 38, 40, the serving tray stand 10 of the present invention also may be constructed with only one strap, or with more than two straps (not shown). Preferably, the support straps are made of webbed material (webbing), fabric, nylon or other synthetic fabric, and the like, which are sturdy and easily washed. Alternately, a suitable chain may be used.

**[00022]** The integral upper transverse portions 20, 22 of the frames 12, 14 preferably bear two protective bumpers 42, 44 and 46, 48 respectively, spaced from one another. Again, although the embodiment illustrated in FIG. 1 discloses two bumpers 42, 44 and 46, 48 located on each of the transverse portions 20, 22 of the frames 12, 14, the serving tray stand 10 of the present invention also may be constructed with only one bumper on each transverse portion, or with more than two bumpers (not shown). Preferably, the bumpers are made of rubber, or another suitable non-slip material. The bumpers 42, 44 and 46, 48 may be attached to the transverse portions 20, 22 of the frames 12, 14 with chemical adhesive or connectors, such as screws, bolts, pins, or any suitable connector. In the preferred embodiment, the bumpers 42, 44 and 46, 48 are small, raised, and generally annular in shape, but any shape or size of bumper may be used.

**[00023]** Referring to FIG. 1, operation of the present invention now will be described. First, a server must ensure the tray stand 10 has been unfolded into its open state, as shown in FIG 1. The server may then rest a serving tray (not shown) on the transverse portions 20, 22 of the frames 12, 14. The bumper pairs 42, 44 and 46, 48 prevent the tray from sliding off the stand 10 should the tray or stand be accidentally jostled or tilted. The retaining members or support

straps 38, 40 fastened to the cross bars 32, 34, prevent the legs 16, 18 of the frames 12, 14 from spreading greater than an amount governed by length of the straps. Preferably, the length of the support straps permit the frames 12,14 to separate to a maximum angle of about sixty degrees. However, any suitable angle of separation may be permitted depending upon the specific application. In addition, the cross bars 32, 34 and support straps 38, 40 create a temporary storage area below the pivot points 26, 28 configured to hold service items, such as bus tubs or extra serving trays (not shown).

**[00024]** The “openness” or non-blocked feature of the upper portion of the tray stand 10 provides a significant advantage to a server attempting to remove a serving tray. Most conventional tray stands include support straps above their pivot points, which typically connect their upper transverse portions to each other. Servers using such tray stands must carefully reach between the service tray bottom and top of the straps to lift trays, taking precautions not to entangling an arm and accidentally lift or overturn the tray stand. The open tray stand 10 of the present invention allows the server to freely and quickly remove serving trays without the nuisance of straps at that location, thus increasing serving speed and efficiency of the wait-staff.

**[00025]** An alternate embodiment of the present invention is depicted in FIG. 2. The tray stand 110 generally comprises a first frame 112, pivotably coupled to a second frame 114. Both frames 112, 114 may include spaced pairs of substantially parallelepiped-shaped parallel legs 116, 118 and oblate cylindrical upper transverse beams 120, 122. The frames may be made of wood, preferably, finished hardwood. Of course, any suitable material may be used.

**[00026]** The first and second frames 112, 114 are pivotably coupled to each other at first and second pivot points 126, 128 located on a common axis, labeled as “X.” The frames 112, 114 are coupled at the pivot points 126, 128 with connectors, such as screws, bolts, or pins 130. The tray stand 110 depicted in FIG. 2 is shown in its open state. The frames 112, 114 may be folded together about their pivot points 126, 128, closing the tray stand 110 to allow for easier transport or storage. The frames 112, 114 may be substantially the same size and coupled in an offset manner from each other, or may be differently sized and coupled one inside the other, as shown in FIG. 2.

**[00027]** First and second rectangular parallelepiped cross bars 132, 134 are attached to the legs 116, 118 of the first and second frames 112, 114 respectively, below the pivot points 126, 128. The cross-sectional shape of the components may be round, rectangular, or any other

suitable shape. The cross bars 132, 134 are attached to the legs 116, 118 with a suitable chemical adhesive or a suitable connectors such as screws, bolts, pins, rivets, and the like. The cross bars 132, 134 are connected to each other by two support straps or restraining members 138, 140. At their ends, the support straps 138, 140 may be partially wrapped around the cross bars 132, 134, and fastened with adhesives or connectors such as screws, bolts, pins, or staples. Although the embodiment illustrated in FIG. 2 discloses two support straps 138, 140, the serving tray stand 110 of the present invention also may be constructed with only one strap, or with more than two straps (not shown). Preferably, the support straps are made of webbed material (webbing), which is both sturdy and easily washed. Any suitable material may be used, such as fabric, nylon or other synthetic fabric, metal or plastic chain, and the like.

[00028] The upper transverse beams 120, 122 of the frames 112, 114 preferably bear two close-fitting, protective rings 142, 144 and 146, 148 respectively, spaced from one another. Again, though the embodiment illustrated in FIG. 2 discloses two rings 142, 144 and 146, 148 located on each of the upper transverse beams 120, 122 of the frames 112, 114, the serving tray stand 110 of the present invention also may be constructed with only one ring (or bumper) on each upper transverse beam, or with more than two rings (not shown). Preferably, the rings are made of a non-slip material. In the preferred embodiment, the rings 142, 144 and 146, 148 are thin, raised toroids, but any shape or size of ring may be used.

[00029] Referring to FIG. 2, the operation of the present invention now will be described. First, a server must ensure the tray stand 110 has been unfolded into its open state, as shown in the illustrated embodiment of FIG. 2. A server may then rest a serving tray on the upper transverse beams 120, 122 of the frames 112, 114. The ring pairs 142, 144 and 146, 148 prevent the serving tray from sliding off the stand 110, should the stand be accidentally jostled or tilted. The support straps 138, 140, fastened to the cross bars 132, 134, prevent the legs 116, 118 of the frames 112, 114 from spreading too far apart, as described with respect to FIG. 1. In addition, the cross bars 132, 134 and support straps 138, 140 create a temporary storage area below the pivot points 126, 128 configured to hold service items, such as bus tubs or extra serving trays.

[00030] The openness of the upper portion of the tray stand 110 provides a significant advantage to a server attempting to remove a serving tray, as described above with respect to the specific embodiment of FIG. 1.

**[00031]** Note that in the specific illustrated embodiments of FIGS 1-2, the legs are shown as being parallel to each other. In an alternate embodiment, however, the legs need not be parallel to each other, and may diverge away from each from the transverse portion toward the end of the leg. In such an embodiment, the “footprint” of the tray stand as it contacts the floor is larger than the “footprint” of top of the tray stand available supporting the serving tray.

**[00032]** While the invention has been described in connection with certain embodiments, it should be understood that it is not intended to limit the invention to these particular embodiments. To the contrary, it is intended to cover all alternatives, modifications, and equivalents falling within the spirit and scope of the invention.